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NEW NEOTROPICAL MUSCIDAE (DIPTERA)

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Notes and descriptions of several old and new species as well as the description of a new genus of the subfamily Phaoniinae are presented. My sincere thanks are due Mr. Paul J. Arnaud, Jr., of Redwood City, California, for the gift of specimens collected by Sr. José M. Schunke in Peru.

Holotypes of all species included will be deposited in the American Museum of Natural History.

CARIOCAMYIA, NEW GENUS

Belongs to the Mydaeini but with superficial resemblance to *Neomuscina* Townsend and *Myospila* Rondani. Facial ridges with short bristles which are continued upward from vibrissae to opposite the upper three-fourths of third antennal segment. Male with a strong pair of reclinate parafrontal bristles opposite the anterior ocellus. Prosternum with numerous setulose bristles over a large portion of the lateral area. Propleura, pteropleura, infra-alar bulla, and suprasquamal ridge bare; hypopleura with hairs only on the subtriangular portion above hind coxae. Posterior thoracic spiracle with fine black hairs on the posterior ventral half among the flap-like covering of hairs. Third wing vein setulose on both surfaces from node to midway to anterior cross vein. Other veins, except costa, bare. Fourth vein strongly curved forward as in figure 1. Lower calyptrae not truncate apically. Mid femora with a short, subapical, anterodorsal bristle. Hind tibiae without a posterodorsal calcar, and the hind coxae are bare above. The genotype is the following species.

Cariocamyia maculosa, new species

Male: Length, 9 mm. Head with parafacials, facial ridges, and

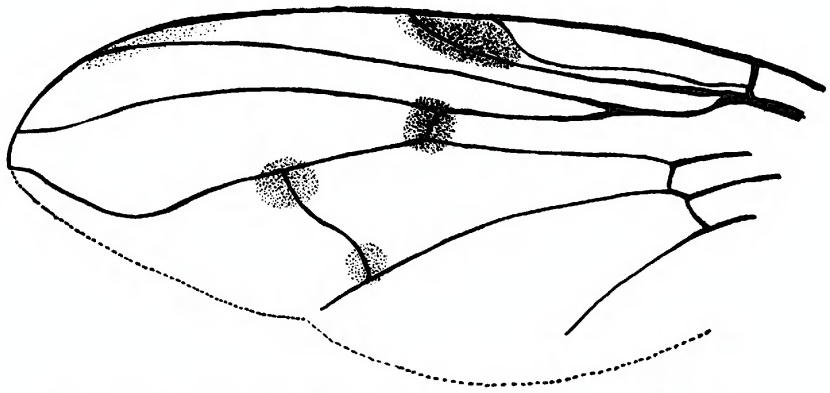

FIG. 1. Wing of *Cariocamyia maculosa*, new genus and species.

the anterior one-half of cheeks yellow, with silvery gray pruinescence, the remainder of head black, the pruinescence yellow to gray. Front at narrowest part 1.75 to 2.0 times as wide as distance across posterior ocelli inclusive. Frontal vitta complete along its entire length, at its narrowest part 1.0 to 1.5 times as wide as the diameter of the anterior ocellus. With three pairs of well-developed, cruciate, parafrontal bristles and with a few shorter anterior and posterior pairs, the entire series extending to slightly before the narrowest part of front, and posterior to this point with a series of very short parafrontal hairs which are continued to slightly before the reclinate pair of posterior parafrontal bristles. The latter are as long as, or longer than, the strongest bristles in the anterior parafrontal series and are subequal to the long, strong, ocellar bristles. Postocellar and vertical bristles scarcely differentiated from the postoccular setulae. In profile, juncture of parafacials and parafrontals as long as the narrowest width of third antennal segment; the parafacials slightly narrowed below. Cheeks narrow, 1.25 times as high as greatest width of third antennal segment; the former with a row of about six ventrally directed bristles, the anterior one or two pairs longer and stouter. Facial ridges with a row of short but well-developed bristles extending from the long and well-developed vibrissae to opposite the narrowest part of third antennal segment and with a few short hairs to opposite the insertion of arista. Second and base of third antennal segment brownish fulvous, remainder of the third brown,

grayish pruinescent. The third segment 3.75 to 4.0 times as long as the second, the latter with a long bristle which is at least as long as the strongest parafrontal bristle in the shorter anterior series. Arista long plumose, the longest hairs on both surfaces together as long as length of the third antennal segment. Palpi blackish brown, with normal shape and bristles. Proboscis brownish black, sparsely gray pruinescent. Eyes bare.

Thorax brownish black, the apex and ventral surface of the scutellum rather fulvous, remainder of thorax grayish pruinescent. When viewed from behind, with four subshiny brownish vittae and with an additional median one extending from the scutellum to opposite the second postsutural dorsocentral bristle. Acrosticals 0:1; dorsocentrals 2:4; intra-alars 1; pra as long as the posterior notopleural bristle and with setulae on notopleura adjacent to the base of both bristles; two strong lateral humerals and a weaker inner one; postalars 2, the outer one one-half as long as the inner one. Scutellum with a pair of strong sublateral and apical bristles and with a pair of shorter basals, the subapical discals moderately differentiated from the clothing setulae. Scutellar setulae continued to the ventral surface and with a few hairs on ventral surface at middle of each side. Spiracular flaps yellow to fulvous. Sternopleurals 1:2.

Legs brownish, the tibiae, tarsi, and apical portion of femora brownish-fulvous to yellow. Fore femora with the usual row of posterodorsal and posteroventral bristles. Fore tibiae without well-developed median bristles. Mid femora with a row of short ventral to posteroventral bristles on the basal one-half and with a short apical anterior, a stronger apical posterior, and posterodorsal bristle. Mid tibiae with two median posterior bristles. Hind femora with two or three apical anteroventral and one or two much shorter median bristles on the same surface. Hind tibiae with a single median anterodorsal and anteroventral bristle; only the apical anterodorsal and anteroventral bristle longer than the tibial diameter.

Wings hyaline, the spots brownish; venation and markings as in figure 1. Upper calyptrae hyaline, the margin brownish black, lower calyptrae whitish, the margins not darker; halteres yellow.

Abdomen blackish brown, densely gray pruinescent; the base of all clothing setulae surrounded by a round, shiny brown area. Third visible tergite with a complete row of apical bristles, the fourth with a row of apicals and discals. Basal sternite setulose;

other sternites longer than broad, with one or more pairs of well-developed apical bristles.

TYPE MATERIAL: Holotype, male, Rio de Janerio, Grajahu, September 19, 1937 (H. S. Lopes); paratypes: two males, same data as holotype.

Mulfordia secunda, new species

FEMALE: Length, 8 to 9 mm. Head black, grayish pruinescent. Frontal vitta velvety black. Front at vertex 0.25 of greatest head width and widened to 0.4 at base of antennae. In profile, the juncture of parafacials and parafrontals as long as width of third antennal segment, while the parafacials are narrowed to one-half this width below. The oral margin not projecting anteriorly as far as the juncture of parafacials and parafrontals. Cheeks 1.25 to 1.50 as high as width of third antennal segment. Facial ridges with two or three rows of widely scattered, very short hairs which extend to opposite a level slightly below the insertion of the arista. Anterior parafrontal, anterior ocellar, and the inner vertical bristles almost as long and strong as the very well-developed vibrissae. With three to five pairs of short, weak, median, parafrontal bristles and with two pairs of well-developed, backwardly and outwardly directed orbital bristles, these subequal to the short outer verticals. Parafrontals with a series of short, hair-like setulae laterad to the bristles and which are continued to slightly below the level of the strong anterior parafrontal bristles. Antennae black, the base of third and apex of second segments sometimes brownish. Third segment 3.0 to 3.5 times as long as second. Longest aristal hairs 0.5 as long as length of third antennal segment. Palpi black, with normal shape and bristles. Eyes with a few minute, widely scattered hairs.

Thorax bluish-black, grayish pruinescent, and with four narrow black vittae when viewed from behind. Acrosticals 0:0 or with a very short, weak, prescutellar pair; dorsocentrals 2:3; intra-alars 2; pra absent; humerals 1; notopleura with a few short setulae adjacent to the anterior bristle; anterior mesopleural bristle absent; scutellar setulae descending onto sides and ventral surface. With a few setulae on the suprasquamal ridge and on the convex portion of the pleura below the base of the lower calyptrae; pteropleura with a few short setulae on the ridge below the calyptrae; hypopleura setulose in front of and below the spiracle as well as on the triangular portion above the hind coxae; meta-

thoracic spiracle with a few fine, short, black setulae among the posterior flap-like covering of hairs. Prosternum bare.

Legs black, the apices of femora and tibiae brownish fulvous to dark brown. Fore femora with normal bristles; fore tibiae with a median anterodorsal bristle. Mid femora with two to three strong ventral bristles on the basal one-half and with a well-developed apical anterior to anterodorsal, dorsal, posterodorsal, and posterior bristle and with a few short anterior bristles on basal half. Mid tibiae with two median posterior bristles. Hind femora with one strong and one weak subapical anteroventral bristle, the base of anteroventral and posteroventral surfaces with a few basal hairs which are only slightly longer than the clothing setulae; hind tibiae with one anterodorsal and two anteroventral median bristles; hind coxae with a few fine hairs at apex above.

Wings hyaline, with a very faint yellowish, scarcely distinguishable cloud from apex of first to apex of second veins. Cross veins not infuscated. Costal thorn very short; with a few setulae on ventral surface of third wing vein beyond the node. Posterior cross vein almost straight. Third and fourth veins subparallel at apices. Calyptrae white, the margins slightly yellowish. Halteres yellow, the base of knobs dark brown.

Abdomen somewhat lanceolate, concolorous with thorax, grayish pruinescent; when viewed from the side with dorsal and lateral checkerings. With a single strong lateral apical bristle on the first two visible tergites and a row of about six long apicals on third and a row of four discals and apicals on fourth. Basal sternite setulose, others with a pair of moderately strong apical bristles.

TYPE MATERIAL: Holotype, female, Chanchamayo, Department of Junin, Peru, May 18, 1948 (José M. Schunke); paratypes, seven females, topotypical, taken May 5, June 3, 24, 30, July 17, and August 8, 1948, from 1100 to 1300 meters elevation (José M. Schunke).

This species is placed in *Mulfordia* Malloch (1928, p. 466) with some hesitation, especially since the males of this species and of the genotype are still unknown. *Secunda* differs from the genotype, *ferruginea* Malloch, in not having the fourth vein slightly curved forward at apex and in having two instead of one pair of posterior parafrontal bristles. The genotype has very short setulae on the suprasquamal ridge as in *secunda* but the setulae on the pleura directly below the base of the lower calyptrae are absent. The presence of the setulose hairs on the hind coxae above and on the

suprasquamal ridge is sufficient, in my opinion, to warrant its inclusion in *Mulfordia*.

GENUS **HELINELLA** MALLOCH

MALLOCH, 1926, Philippine Jour. Sci., vol. 31, p. 498.

This genus with its genotype, *Spilogaster propinqua* Stein (1900, p. 386), is widely distributed in the Old World tropics. The genotype, originally described from the Orient, is one of the more common muscids in west Africa. The discovery of an apparently undescribed species from Peru, which would fall within this group if the present generic limits are broadened, prompts the presentation of the following remarks.

The genotype invariably possesses one, and more usually several, setulose hairs on the ventral surface only of the node (juncture of second and third wing vein), although an occasional specimen may have one or two beyond the juncture; the fourth wing vein is curved forward slightly at apex, the pra is very short, and the notopleura lack setulae adjacent to the base of both bristles, and the hypopleura is bare. If all these characters are given equal weight and considered to be of primary generic significance, then only one or two other Oriental species could be included. However, if the main generic character is assumed to be the presence of setulae on the ventral surface of the third vein, whether on node, beyond, or both, then a number of other African species could be included, namely, *Spilogaster rufina* Stein (1906, p. 48), *Helina castanea* Curran, and *H. subsetosa* Curran (1938, pp. 12 and 13).

Rufina Stein has hypopleural hairs in front of, as well as below, the posterior thoracic spiracle, and the fourth vein has a slight forward curvature; *subsetosa* Curran has hypopleural hairs only in front of the spiracle, and the fourth vein is straight or has only a very slight deflection; while *castanea* Curran, unlike the preceding two species, has the pra very long and without notopleural setulae adjacent to the bristles, the hypopleura is bare, and the fourth vein has an indication of a pre-apical curve.

Since there are all gradations within this series of species and the following new Neotropical species possesses many of the above characters, it has been placed in *Helinella*. All species may be further grouped together by the absence of setulae among the flap-like covering of hairs of the posterior thoracic spiracle.

Helinella neotropica, new species

FEMALE: Length, 7 mm. Head black, pruinescence on back of head grayish, on the cheeks reddish brown, on the parafrontals in front of vitta dark brown, while the parafacials are brownish gray pruinescent. Front at vertex 0.25 of greatest head width and broadened to 0.30 at base of antennae. In profile, juncture of parafacials and parafrontals narrow, not over 0.5 as long as width of third antennal segment, while the parafacials are distinctly narrowed below. Cheeks 0.2 of eye height. With a pair of long, strong, anterior parafrontal, inner vertical, and anterior ocellar bristles; parafrontals with three to four pairs of shorter median bristles and with two pairs of stronger backwardly and outwardly directed posterior ones, the posterior pair longest and subequal to the outer verticals. Palpi and antennae fulvous. Arista long plumose. Eyes with very short and sparse hairs.

Thorax dark blue to black, with sparse grayish pruinescence and with only a trace of four subshiny black vittae. Acrosticals 0:1; dorsocentrals 2:3; intra-alars 2; pra at least as long as the anterior notopleural bristle and with notopleural setulae adjacent to the base of both bristles. Scutellar setulae descending only slightly below level of marginals; sternopleurals 1:2; anterior mesopleural bristle absent; hypopleura with a few setulae in front of the spiracle only.

Legs dark brown to black. Fore femora normal. Fore tibiae without median bristles. Mid femora with only a subapical anterodorsal, posterodorsal and posterior bristle. Mid tibiae with three posterior bristles. Hind femora with a subbasal and a row of four or five anteroventral bristles on the apical one-third. Hind tibiae with two anterodorsal and four anteroventral median bristles; the apical dorsal, anterodorsal, and anteroventral bristles well developed, at least as long as the tibial diameter and with the latter bristle the strongest of all. Clothing setulae on the tarsi, especially of the hind pair, slightly longer than usual.

Wings brownish hyaline and with a darker brown costal cloud extending from apex of subcosta to apex of second vein and with both cross veins broadly infuscated. Costal thorn scarcely differentiated. Third wing vein with a few setulae beyond the node on the ventral surface; the fourth vein somewhat curved forward apically and the posterior cross vein almost straight. Calyptrae brown, the margins considerably darker. Halteres light brown.

Abdomen bluish to purple, subshiny and with very sparse gray

pruinescence. First and second visible tergites with one or two lateral apical bristles, the third and fourth with a complete row of apicals. Basal sternite bare; the tip of the ovipositor, which is the only portion visible, is fulvous.

TYPE MATERIAL: Holotype, female, Chanchamayo, Department of Junin, Peru, May 7, 1948 (José M. Schunke).

GENUS **LISPOIDES** MALLOCH

MALLOCH, 1920, Trans. Amer. Ent. Soc., vol. 46, p. 146; 1934, Diptera of Patagonia and south Chile, pt. 7, fasc. 2, p. 295.

In reporting on the Muscidae in the last reference above, Malloch stated that besides the genotype, *Limnophora aequifrons* Stein (1897, p. 205), he knew of only four other species that could be included, and these were described as new, viz., *Lispoides inaequifrons, argenticeps, uniseta,* and *argentina,* and a key was presented for separating them and *aequifrons.*

Stein's descriptions and remarks on *Limnophora atrisquama* (1904, p. 466), *L. propinqua* (1911, p. 124), and *L. laevis* (1911, p. 125) indicate their close affinity with this group, more particularly since he mentioned their similarity to *aequifrons.*

In a collection of flies from Peru, there was a series of specimens of *laevis* Stein from the type locality (Chanchamayo). An examination of these specimens indicates they are congeneric with *aequifrons,* although they lack the accessory hairs on the dorsal portion of the parafacials adjacent to the anterior parafrontal bristles.

The three species described by Stein and enumerated above differ from those keyed by Malloch and from the following species in having the margins or more of the calyptrae infuscated.

Lispoides guatemala, new species

MALE: Length, 6 mm. Head black, grayish pruinescent, and with pruinescence on the parafacials somewhat silvery. Frontal vitta velvety black, with very slight grayish reflections. Ocellar triangle brownish, extending anteriorly only about 1.0 to 1.5 times the diameter of the anterior ocellus. Front at its narrowest part 0.2 of greatest head width and 0.5 of greatest width of one eye. Each parafrontal as wide as diameter of anterior ocellus. In profile, juncture of parafacials and parafrontals as long as greatest width of third antennal segment, the former narrowed to one-half this width below. With a complete row of fine parafrontal

bristles which are longest in front and become shorter posteriorly. With a few accessory hairs laterad to the anterior parafrontal bristle, but these hairs do not descend appreciably below the juncture with the parafacials. Setulae adjacent to vibrissae longer and stronger than the above hairs and ascending onto facial ridges to a level opposite the lower one-third of the third antennal segment. Cheeks 0.2 of eye height. In profile, the antennae are inserted opposite the middle of the eye and extend to the lower one-tenth; third antennal segment 1.6 times as long as second. Arista bare or with scarcely distinguishable hairs. Palpi black; the proboscis shiny black. Eyes bare.

Thorax black, grayish pruinescent. Viewed from the side and above with three broad presutural brown vittae, the central one narrowest and bounded by the largest acrostical setulae; the lateral vittae are widest and extend from the presutural dorsocentrals to the posthumerals. Postsutural area of disc almost uniformly brown, but when viewed from above and behind, with indications of four gray areas, the inner ones in line with the gray lines separating the dark presutural stripes, the lateral pair in line with the intra-alar bristles and with these stripes extending slightly anteriorly onto the presutural area. Scutellum grayish pruinescent and with indications of two darker basolateral areas. Presutural acrostical setulae in about six irregular rows, those bordering the mid stripe slightly longer, and with a slender but distinct pair of prescutellar acrostical setulae; dorsocentrals 2:4; intra-alars 1 or 2, when 2 the anterior pair is very weak; pra absent; a weak anterior mesopleural bristle adjacent to the anterior notopleural bristle; sternopleurals 1:1 but with a very weak and almost indistinguishable additional one below each and scarcely differentiated from the long adjacent clothing setulae. Hypopleura bare.

Legs black, grayish pruinescent. Fore femora with normal bristles and without indications of long anteroventral clothing setulae. Fore tibiae with a short median posterior, an apical dorsal, and a shorter anterodorsal bristle; the clothing setulae on the ventral surface very short and numerous. Mid femora with three or four short ventral bristles on the basal one-fourth, none of which is so long as the femoral diameter where situated, and without distinguishable anterior bristles but with the usual apical posterior and posterodorsal ones. Mid tibiae with one anterodorsal and two posterodorsal submedian bristles. Hind femora with the

usual row of anterodorsal and with three to four distinct anteroventral bristles on the apical one-third, while there are two to three short, submedian, anteroventral setulae and a few long posterior hairs at the base which are as long as, or slightly longer than, greatest femoral diameter. Hind tibiae with two submedian anterodorsal and anteroventral bristles. The apical anteroventral bristle on hind tarsal segments quite distinct, not duplicated, the one on metatarsi quite distinct and somewhat longer than the tarsal diameter.

Wings slightly brownish hyaline, this slight coloring is most distinct between the apex of first and second wing veins. Third and fourth veins gradually divergent from anterior cross vein to wing tips. Posterior cross vein almost straight, joining the fourth about midway between anterior cross vein and wing tip. Calyptrae white, the margins yellow; halteres fulvous.

Abdomen subcylindrical, slightly truncate at apex; black, with grayish yellow pruinescence, the markings brown. The basal tergite with a dark, irregular median spot, the others with a distinct median vitta; in addition the second visible tergite has a large subtriangular spot on each side of the vitta, and this spot extends from base to apex of the segment. The third tergite with a transverse posterior mark on each side of the vitta, and it is extended medianly to the base of the preceding tergite and appears somewhat triangular. Fourth tergite with a median vitta, on each side of which there is a somewhat ventrally situated, very limited, irregular brown spot. Anal tergite prominent, unmarked. Marginal bristles on third and fourth segments longest. Basal sternite setulose; the fifth with a broad, V-shaped cleft and with sparse, moderately short setulae on the lateral processes, the hairs longest at apex.

TYPE MATERIAL: Holotype, male, Guatemala City, Guatemala, August 20, 1943 (F. M. Snyder); paratypes, two males, same data as type.

This species will trace to the fourth couplet in Malloch's key to *Lispoides*, but the different mid and hind tibial bristling would prevent it from running to either *uniseta* or *argentina*. It differs further from the former species in lacking the distinctive long setulae on almost the entire surface of the fifth sternite.

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